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PATENT APPLICATION

ATTORNEY DOCKET NO. 20501/553

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of: Charles Jeff Morgan

Application No.: 10/716,687 Group No.: 3682

Filed: November 19, 2003 Examiner: Marcus Charles

For: POWER SHAFT INCLUDING A BELT RETAINING GEOMETRY

**MAIL STOP APPEAL BRIEF - PATENTS**
**COMMISSIONER FOR PATENTS**
**P. O. Box 1450**
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## BRIEF ON APPEAL

## INTRODUCTION

Pursuant to the provisions of 37 CFR § 41.31 *et seq.*, Applicants hereby appeal to the Board of Patent Appeals and Interferences (the "Board") from the Examiner's final rejection dated April 5, 2007, and the Advisory Action dated June 5, 2007.

A Notice Of Appeal was previously filed on June 5, 2007, while the Appeal Brief is provided herein. The Appeal Brief is further accompanied by the requisite appeal brief filing fee per 37 CFR § 41.20(b)(2).

## REAL PARTY IN INTEREST

The entire interest in the present application has been assigned to Oreck Holdings, LLC, as recorded at Reel 014726, Frame 0602 on November 19, 2003.

## RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

## STATUS OF CLAIMS

Claims 1-20 are pending.

Claims 4-5, 10-11, and 17-18 are withdrawn from consideration.

Claims 1-3, 6-9, 12-16, and 19-20 have been finally rejected.

Claims 1-3, 6-9, 12-16, and 19-20 are on appeal.

## STATUS OF AMENDMENTS

There are pending amendments. In the response after final, Applicant attempted to delete reference numbers from the claims. The reference numbers had been added by amendment but not underlined according to 35 C.F.R. 1.121 and the reference numbers were not enclosed within parentheses and therefore were of improper form.

Applicant attempted to cancel the reference numbers from the claims in order to remove the issue. There was no amendment to the wording (or content) of the claims. The Examiner asserted that this was a change in scope and that a new search would be required. In the Advisory Action, the Examiner refused entry of the amendment of the reference numbers.

## SUMMARY OF CLAIMED SUBJECT MATTER

This invention relates generally to a power shaft 100. More specifically, the invention relates to a power shaft 100 including a belt retaining geometry.

According to one embodiment, the power shaft 100 comprises a normal belt position portion 110 adapted for receiving a belt 201 and a reduced diameter portion 114 formed on the shaft and located adjacent to the normal belt position portion 110 (see FIGS. 1-2 and see page 3, lines 16-20). The belt 201 can move into the reduced diameter portion 114 of the power shaft 100 during operation (see FIG. 3) and the reduced diameter portion 114 creates an alignment tension force on the belt 201 that operates to return the belt 201 to the normal belt position

portion 110 (see page 3, line 20 to page 4, line 2).

According to one embodiment, the power shaft 100 comprises a normal belt position portion 110 adapted for receiving a belt 201. The power shaft 100 comprises a first angled portion 107 that angles from a normal diameter 101 of the normal belt position portion 110 inwardly partially toward a center of the shaft 100 and tapers to a reduced diameter 102 and at a first angle $a_1$ from an exterior surface 103 of the shaft, a second angled 108 portion that angles outwardly from the reduced diameter 102 and at a second angle $a_2$ from the exterior surface 103 of the shaft 100, and a neck region 106 formed between the first angled portion 107 and the second angled portion 108 (see FIG. 1 and see page 4, lines 16-21). The neck region 106 transitions from the first angled portion 107 to the second angled portion 108 (see page 4, line 27 to page 5, line 3). The belt 201 is positioned on the normal belt position portion 110 of the shaft 100. The belt 201 can move into the reduced diameter portion 114 of the power shaft 100 during operation and the reduced diameter portion 114 creates an alignment tension force on the belt 201 that operates to return the belt 201 to the normal belt position portion 110 (see page 6, lines 5-20).

According to one embodiment, a method of forming a power shaft including a belt retaining geometry comprises providing a shaft portion including a normal belt position portion adapted for receiving a belt and forming a reduced diameter portion on the shaft and located adjacent to the normal belt position portion. The belt can move into the reduced diameter portion of the power shaft during operation and the reduced diameter portion creates an alignment tension force on the belt that operates to return the belt to the normal belt position portion.

## GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

1. Whether claims 1-3, 6-9, 12-16, and 19-20 are anticipated under 35 U.S.C. § 102(b) over U.S. Patent No. 5,318,479 to Lawroski.

## ARGUMENT

**OUTLINE**

I. Summary of the brief on appeal.

II. Summary of the requirements for *prima facie* anticipation.

III. Discussion of the § 102(b) anticipation rejection of claims 1-3, 6-9, 12-16, and 19-20.

**I. Summary of the brief on appeal**

A. The 35 U.S.C. § 102(b) rejection of claims 1-3, 6-9, 12-16, and 19-20 is improper because the Lawroski patent does not anticipate independent claims 1, 8, and 14.

**II. Summary of the requirements for *prima facie* anticipation.**

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdegaal Bros. v. Union Oil Co. of California*, 814 F.2d 628, 631, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987).

**III. Discussion of the § 102(b) anticipation rejections of claims 1-3, 6-9, 12-16, and 19-20.**

Claims 1-3, 6-9, 12-16, and 19-20 stand finally rejected under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent 5,318,479 (Lawroski). Applicant respectfully traverses the rejection.

Independent claims 1 and 14 require a shaft including a normal belt position portion adapted for receiving a belt and a reduced diameter portion formed on the shaft and located adjacent to the normal belt position portion.

Independent claim 8 requires a shaft including a normal belt position portion adapted for receiving a belt, a first angled portion, a second angled portion, and a neck region formed between the first angled portion and the second angled portion. The first angled portion 107 angles from a normal diameter 101 of the normal belt position portion inwardly partially toward a center of the shaft and tapers to a reduced diameter 102 and at a first angle $a_1$ from an exterior surface 103 of the shaft. The second angled 108 portion angles outwardly from the reduced diameter 102 and at a second angle $a_2$ from the exterior surface 103 of the shaft. The neck region 106 is formed between the first angled portion and the second angled portion, wherein the neck region transitions from the first angled portion to the second angled portion. Independent claim 8 further requires the belt positioned on the normal belt position portion of the shaft.

Advantageously, the claims may be implemented in some embodiments where the belt can move into the reduced diameter portion of the power shaft during operation and the reduced diameter portion creates an alignment tension force on the belt that operates to return the belt to the normal belt position portion.

First, Lawroski does not disclose a power **shaft** including a belt retaining geometry. In contrast, Lawroski discloses a **pulley** 40 including a belt groove 42 (see FIG. 1A, see col. 2, lines 30-33, and see col. 2, lines 42-45). For this reason alone, Lawroski cannot anticipate the present invention.

Second, Lawroski does not teach or suggest a normal belt position portion together with a reduced diameter portion adjacent to the normal belt position portion, as is clearly shown in FIG. 2 of the present invention. Lawroski only shows the circular belt groove 42. The portions of the pulley 40 on either side of the groove 42 are completely flat. A belt 50 in Lawroski rides in the belt groove 42 (see col. 2, lines 42-45). The belt groove 42 in Lawroski is the normal belt position portion.

Third, Lawroski does not disclose a first angled portion, a second angled portion, and a neck region formed between the first angled portion and the second angled portion, as in claim 8. Lawroski does not even teach or suggest angled portions. In contrast, the belt groove 42 of Lawroski is circular and is designed for a circular cross-section belt 50. Lawroski does not teach or suggest flat, angled portions or faces. If the circular belt 50 of Lawroski moves out of a

normal position, *i.e.*, if it moves out of the groove 42, then there is no device or mechanism that will perform a returning action to the normal position.

The circular belt 50 of Lawroski is not designed to interact with a first or second angled portion and would not satisfactorily interact with an angled portion. The belt groove 42 of Lawroski is not designed to create an alignment tension force on the circular belt 50.

The Office Action asserts that FIG. 1A of Lawroski shows first and second angled portions and a middle portion. The Office Action further asserts that "Lawroski fails to disclose the shape of the belt groove" and implies that the groove of Lawroski is not circular. This is plainly incorrect, and is clearly refuted by FIG. 1A. The belt cross-sectional shape is drawn as being circular. The groove is drawn as being circular. The groove does not include "angled" sides, as it has curved sides.

Independent claims 1, 8, and 14 therefore include features that are neither taught nor suggested by Lawroski. Claims 2-3, 6-7, 9, 12-13, 15-16, and 19-20 are allowable for the same reasons as claims 1, 8, and 14.

**Conclusion**

In view of the above, applicant respectfully request that the examiner's rejection of claims 1-3, 6-9, 12-16, and 19-20 be reversed.

The Director is hereby authorized to charge the $500.00 fee for filing a brief in support of an appeal and to charge any additional fees which may be required, or credit any overpayment, to Deposit Account No. 502382. An additional copy of this sheet is attached hereto.

Respectfully submitted,

Date: 7/24/07

Gregg Jansen
SIGNATURE OF PRACTITIONER

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## CLAIMS APPENDIX

1. A power shaft 100 including a belt retaining geometry, with the power shaft having a shaft including a normal belt position portion 110 adapted for receiving a belt 201, the power shaft characterized in that the shaft comprises:

   a reduced diameter portion 114 formed on the shaft and located adjacent to the normal belt position portion;

   wherein the belt can move into the reduced diameter portion of the power shaft during operation and the reduced diameter portion creates an alignment tension force on the belt that operates to return the belt to the normal belt position portion.

2. The power shaft of claim 1, with the reduced diameter portion comprising:

   a first angled portion 107 that angles from a normal diameter 101 of the normal belt position portion inwardly partially toward a center of the shaft and tapers to a reduced diameter 102 and at a first angle $a_1$ from an exterior surface 103 of the shaft;

   a second angled portion 108 that angles outwardly from the reduced diameter 102 and at a second angle $a_2$ from the exterior surface of the shaft; and

   a neck region 106 formed between the first angled portion and the second angled portion, wherein the neck region transitions from the first angled portion to the second angled portion.

3. The power shaft of claim 2, with the first angled portion tapering substantially regularly to the reduced diameter and at the first angle.

6. The power shaft of claim 1, with the neck region comprising a neck radius forming a substantially smooth transition from the first angled portion to the second angled portion.

7. The power shaft of claim 1, wherein a first angled portion dimension is less than a belt width of the belt.

8. A power shaft 100 including a belt retaining geometry, with the power shaft having a shaft including a normal belt position portion 110 adapted for receiving a belt 201, the power shaft characterized in that the shaft comprises:

a first angled portion 107 that angles from a normal diameter 101 of the normal belt position portion inwardly partially toward a center of the shaft and tapers to a reduced diameter 102 and at a first angle $a_1$ from an exterior surface 103 of the shaft;

a second angled 108 portion that angles outwardly from the reduced diameter 102 and at a second angle $a_2$ from the exterior surface 103 of the shaft;

a neck region 106 formed between the first angled portion and the second angled portion, wherein the neck region transitions from the first angled portion to the second angled portion; and

the belt positioned on the normal belt position portion of the shaft;

wherein the belt can move into the reduced diameter portion of the power shaft during operation and the reduced diameter portion creates an alignment tension force on the belt that operates to return the belt to the normal belt position portion.

9. The power shaft of claim 8, with the first angled portion tapering substantially regularly to the reduced diameter and at the first angle.

12. The power shaft of claim 8, with the neck region comprising a neck radius forming a substantially smooth transition from the first angled portion to the second angled portion.

13. The power shaft of claim 8, wherein a first angled portion dimension is less than a belt width of the belt.

14. A method of forming a power shaft including a belt retaining geometry, the method characterized by the steps of:

providing a shaft portion including a normal belt position portion adapted for receiving a belt; and

forming a reduced diameter portion on the shaft and located adjacent to the normal belt position portion;

wherein the belt can move into the reduced diameter portion of the power shaft during operation and the reduced diameter portion creates an alignment tension force on the belt that operates to return the belt to the normal belt position portion.

15. The method of claim 14, with forming the reduced diameter portion comprising:

forming a first angled portion that angles from a normal diameter of the normal belt position portion inwardly partially toward a center of the shaft and tapers to a reduced diameter and at a first angle from an exterior surface of the shaft;

forming a second angled portion that angles outwardly from the reduced diameter and at a second angle from the exterior surface of the shaft; and

forming a neck region formed between the first angled portion and the second angled portion, wherein the neck region transitions from the first angled portion to the second angled portion.

16. The method of claim 15, with the first angled portion tapering substantially regularly to the reduced diameter and at the first angle.

19. The method of claim 14, with the neck region comprising a neck radius forming a substantially smooth transition from the first angled portion to the second angled portion.

20. The method of claim 14, wherein a first angled portion dimension is less than a belt width of the belt.

## EVIDENCE APPENDIX

None

## RELATED PROCEEDINGS APPENDIX

None